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ABSTRACT

The purpose of this study was to apply the tenets of social exchange theory in developing cover letters for mailed surveys. A survey questionnaire designed to measure teachers' attitudes toward tests was mailed to 1200 Kansas teachers. Cover letters were written to create variation in perceived cost (time needed to complete the questionnaire) and type of reward offered (egotistic, social utility, help the sponsor). Two questionnaire format sizes were used, one half as large as the other (conventional) size. Three forms of time cues were combined with each of the reward cues. Finally, all combinations of cost and reward conditions were included and mailed with a large format size and small format size of the survey questionnaire. The results suggest that the reward condition had no substantial effect on the return rate. The time and format conditions both produced an effect. Contradicting the theory, the lowest return rate occurred for the shorter time condition and the larger format size. (BW)

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Improving Response Rates and Response Quality in Educational Survey Research

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Educators spend considerable time and effort collecting attitude and perceptual data from students, colleagues, and school patrons. Surveys are a commonly used technique to collect these types of information. Surveys are sent home with students or mailed to patrons and colleagues. The validity and usefulness of the survey data depend upon the response rate (percentage of respondents returning the survey) and the response quality (completeness of the survey data). For survey data to reflect the attitudes, opinions, and/or beliefs of a population of respondents, the response rates need to be high, at a minimum 50% (Dillman, 1978). However, responses rates in the 25% to 50% range are common (Childers, Pride, & Ferrell, 1980; Furse, Stewart, & Rados, 1981; Hansen, 1980; Hornik, 1980; Jones & Lang, 1980). With low response rates, generalization of results is problematic and the validity of the conclusions drawn from the research are questionable. For this reason, increased research attention needs to be directed to the question of why people elect to respond or not to respond to questionnaires.

Researchers in sociology, political science, and marketing as well as education have long been interested in the factors that influence response rate. Dillman (1978) lists 16 topics that have been studied as factors that may affect response rates. Among the most widely researched topics are (1) advanced notification of the questionnaire known as a "foot-in-the-door" procedure (Allen, Schewe & Wijk, 1980; Brunner & Carroll, 1968; Furse, Stewart, Rados, 1981; Hanson & Robinson, 1980; Hornik, 1982; Linsky, 1975; Seligman, Bush & Kirsch, 1976); (2) the use of incentives both monetary and nonmonetary (Dillman, 1978; Furse, Stewart, & Rados, 1981; Hansen, 1980; Linskey, 1975); and (3) the use of follow-up (Dillman, 1978; Kahuka & Berenson; Furse, Stewart & Rados,

1981). Number of follow-ups, type of follow-up, mail or telephone follow-ups, and timing of follow-ups have all been studied.

Despite the study of a wide variety of factors, the research findings have been mixed. Kanuh and Berenson (1975) write:

> "Despite the large number of research studies reporting techniques designed to improve response rates, there is no strong empirical evidence favoring any techniques other than the follow-up and the use of monetary incentives." (p. 451)

Furse, Stewart, and Rados (1981) echo Kanuh and Berenson's conclusion. They write that the early enthusiasm for the foot-in-the-door procedure has been dampened recently by findings that the method does not always work and is more complex that originally thought (p. 473). They also conclude that only two procedures have been shown to improve response rates consistently, follow-up contacts and monetary incentives enclosed with the questionnaire (p. 473).

The advantage to the educator of the survey questionnaire lies in the economy and convenience offered by the method of data collection. However, the value of survey data is dependent upon the response rate and the response quality. The methods which research suggests will increase the response rate, foot-in-the-door procedures, monitary incentives and follow-ups, also greatly increase the cost of the studies. Educators, unlike market researchers and public opinions pollsters, do not have organizations which can either underwrite the cost or provide incentives in the form of produce samples or product discounts. Therefore, there is a need for additional studies of the factors related to the initial mailing of survey which may affect response rate.

Purpose of the Study

The purpose of the study is to apply tenets of social exchange theory in developing cover letters for mailed surveys. The idea of

studying response rates to mailed questionnaires from a theoretical rather than a descriptive framework has been suggested by Dillman (1978), Hansen (1980), Linsky (1975), and Reingen and Kernan (1977). These researchers have used self-perception theory (Hanson, 1980; Reingen & Kernan, 1977) and "social exchange" theory (Dillman, 1978) to explain why persons respond or fail to respond to surveys.

The cover leter is an integral part of the mail survey. It introduces the respondent to the study and attempts to maximize the respondent's motivation to complete and return the survey questionnaire. Modifications in the cover letter and the size of the questionnaire format do not increase the cost of the survey and provide important information about cost efficient ways of increasing response rates and response quality. The proposed study applied the tenets of social exchange theory as described by Dillman (1978) to study the effects of time cuing and social rewards included in cover letters on response rates to mailed questionnaires.

Social Exchange Theory

"The theory of social exchange ... asserts that the actions of individuals are motivated by the return these actions are expected to bring and, in fact, usually do bring from others" (Dillman, 1978, p. 12). The theory further assumes that people undertake a task because of the rewards they hope to accrue, that people recognize that any task entails certain costs, and that people attempt to keep the cost associated with completing a task below the rewards they hope to realize from completing the task. Behavior is therefore a function of the ratio of the perceived cost of the behavior to the perceived rewards of the behavior. Thus, Dillman argues that there are three ways to maximize

survey response: minimize the cost of responding, maximize the rewards for responding, and establish trust that the rewards for responding will be delivered.

The proposed study focused upon minimizing the respondent's perception of the cost of completing the survey questionnaire and at the same time tested the effect of offering three types of rewards for completing the questionnaire. For the survey respondent, the cost associated with completing a questionnaire are two fold, the time and the effort required to understand and respond to the survey. Time cuing and modification of survey format size were systematically manipulated to determine if these variables affected response rates and response quality.

Cottle (1976) discusses how persons make decision about the time required to accomplish a particular task. In general, his theory of time perception suggests that persons search for time cues if their past experiences do not permit them to estimate the time required to complete a task. According to Cottle (1976), people will search for cues to estimate time and that, given a time cue, they will appropriate the time cue as their own estimate of the time needed to complete the task. Thus, time cuing offers a means of influencing the respondent's perception of the cost associated with completing the survey.

The other cost, effort, was controlled by use of an easy response format, circling the response, and by high interest questionnaire context. The effort of completing a survey questionnaire is related to the respondents' interest in the context and their perceived competence in responding to the content of the questionnaire (Dillman, 1976). People do not like to respond to questions about topics in which they have little interest or consider themselves lacking in knowledge and expertise. The question-

naire used in this study assessed teachers' attitudes toward tests and the use of the test data for teacher certification and certification of student competence.

Finally, the questionnaire format size was modified according to Dillman's suggestions. One form of the survey questionnaire (large size) was a conventional 8½x11 size. The second form of the survey (small size) was reduced in size and was half the size of the large size format. Dillman gives very specific directions for reducing questionnaire format size.

Social exchange theory argues that not only must the perceived cost of completing the survey be low, but the perceived reward must be greater than the perceived cost. According to Dillman (1976), the rewards a researcher can offer include: (1) being regarded positively by another person, (2) expressing appreciation to the respondent, (3) being consulted on an issue of importance to the respondent (p. 13). Childers, Price, & Ferrell (1980) have identified three types of appeals which can be made to respondents: egotistic, social utility, and help the sponsor (p. 367). These appeals are rewards in the framework of social exchange theory. The interaction of these types of rewards with the cost factors were studied.

The present study while drawing upon existing research is unique for two reasons. First, it uses a theoretical rather than descriptive, pragmatic approach to the study of response rates and response quality. Second, it studies the interaction among several variables theorized to affect response rates and response quality. Dillman (1976) in reporting on past research on mail surveys writes: "The difficulty of arriving at definite conclusions stems primarily from the way past research has been conducted. Most studies focus on only one or two techniques at a time"

(p. 7). He further comments that past research has focused upon techniques instead of the "more important question of how to maximize the probability of response" (p. 8). The present study is based upon social exchange theory and simultaneously manipulates cost and reward factors as methods of increasing the probability that a subject will complete and return a questionnaire.

Method

This study was conducted using a survey questionnaire designed to measure teachers' attitudes toward tests. The questionnaire was field-tested for completion time and importance and interest to teachers. The questionnaire was completed by a sample of 100 elementary and secondary teachers. The median completion time was 28 minutes. The range of time taken to complete the questionnaire was 15 to 90 minutes. The mean importance rating for the questionnaire was 4.5 and the mean interest rating was 4.1. Ratings were on a 5 point scale with 5 being "very important" or "of great interest."

The questionnaire included 81 attitude items and measured a wide range of attitudes about tests and the use of tests data in the schools. Responses were on a 5-point Likert scale. The respondent was also asked to rate the usefulness to educators of 6 types of test data.

Subjects

A random sample of 1200 Kansas teachers selected from a list of all certified teachers in the state were mailed questionnaires. The State Department of Education provided a computer tape of the certified teachers in the state by level of certification. The subjects selected for participation in the study were stratified by certification level prior to sampling.

Procedure

The questionnaire, a cover letter, and a stamped return envelop were mailed to all subjects. Cover letters were written to create variation in perceived cost and type of reward offered. Three forms of the time cue were written. One form included the statements: This questionnaire takes about 15 minutes to complete (low perceived time cost). A second form included the statement: This questionnaire takes about 30 minutes to complete (high perceived time cost). A third form included no time cue (a control condition). The time statement was capitalized and underlined.

Three forms of the reward condition and a no reward control condition were written and combined with each of the perceived time cost conditions. The reward conditions were patterned after those of Childers, Pride, & Ferrell (1980). Reward conditions are: (1) Egotistic, your opinion is important! It is important for you to give your opinion so we will know more about how teachers use tests and how teachers like you feel test data should be used in schools, (2) Social utility, your opinion will provide information which will contribute to understanding how test scores should be used in schools, and (3) Help the sponsor: The University needs your assistance!! Your opinions are very important to our successful completion of this study.

Finally, all combinations of cost and reward conditions were included with the large format size and the small format size of the survey questionnaire. The number of items in the survey questionnaire, the format of the cover letter, and the quality of the paper remained the same across the 18 treatment conditions. All questionnaires were mailed on a Friday to arrive at the respondent's home or school on a Monday morning.

Independent Variables

The independent variables in the study were: (1) cost with three levels (low perceived time cost, high perceived time cost, no time cost cue), (2) reward with three levels (Egotistic, social utility, help the sponsor), and (3) format size with 2 levels (small and large). Subjects were randomly assigned to one of the 18 treatment conditions. Equal numbers of subjects were assigned to each treatment condition.

Dependent Variables

Three dependent variables were collected.

1) Response rate, the percentage of questionnaire returned
2) Response quality, the number of omitted responses
3) Response speed, the number of days between the mailing of the questionnaire and the return of the questionnaire

Results and Discussion

Six hundred and three surveys were returned. Of these surveys, 593 were included in data analysis for an overall 49% response rate. Preliminary analyses for the first dependent variables, response rate, are presented in Tables 1, 2, and 3. Table 1 gives the percentage return rates for each of the reward conditions. Table 2 reports the return rates for each of the time conditions. The return rates for the format conditions are given in Table 3.

The results of the analysis of response rates suggests that the reward condition had no substantial effect on the return rate. The time and format conditions both produced an effect.

The lowest return rate occurred for the 15 minute time condition with 28% of the returns in this category. The thirty minute time cue produced the highest return rate (39%). Social exchange theory suggest

that return rates will be high when rewards are perceived as high and costs are perceived as low. Based upon this premise it was anticipated that the short time cue would produce a higher return rate than the other two time conditions. This was not the case. The highest return rate occurred for the 30 minute condition. However, in field testing of the survey questionnaire the median reported response time was 28 minutes. Thus, respondents familiar with questionnaires may have discounted the fifteen minute time cue and declined to respond on the grounds that the time cost was too high. This finding also suggests that while time cues increase response rates, the time cues need to be matched to the average time required to complete the questionnaire.

Finally, the larger 8½x11 format produced a higher return rate (54%) than the reduced format (46%). Again the theory suggests that if the cost of completing the questionnaire is low relative to the reward, the return rate will be enhanced. Therefore, one would postulate that a smaller format size would create the perception of lower cost and increase response rate. This was not the case in this study.

Tables 4 and 5 give the results of the Chi Square analysis of the return rates by format for the different reward conditions and time cues. The Chi Square value was significant for the long form (see Table 5), but non-significant for the reduced questionnaire format. For the long form, the return rate for the egotistic reward condition coupled with the 30 minute time cue was almost twice as great as any other combination of rewards and time cues. Therefore, while the reward conditions produced similar return rates when considered independently of other characteristics of the questionnaire, the type of reward interacted with time cues and format to produce significant differences in return rates.

The original research design had defined response quality (amount of missing data) as a second dependent variable. However a measure of response quality could not be developed because all surveys which were returned were essentially complete. No survey had more than 3 of the items omitted and no item had missing data for more than 2 respondents. (Nineteen items had 1 missing value and 3 items had 2 missing values). Demographic data were provided by all respondents.

The quality of the responses as defined by the absence of missing data was very high. Persons who responded to the survey took the time and made the effort to complete the entire survey. The completeness of the data speak to the high interest of the content, the ease of responding, and the importance of instrument development. The survey was developed using the guidelines provided by Dillman (1978) and Frey and had undergone comprehensive field testing. Finally, respondents were provided a section for comments. Five persons wrote comments. All spoke to the items assessing competency tests for students and all commented on the need to evaluate competency within the framework of the students' characteristics.

The third dependent variable studied was response speed, the daily response rate. Returns were monitored for the first two weeks after the mailing of the questionnaires. Mail was delivered Monday through Friday. Eighty percent of the returns were received in the first two weeks. The number of returns ranged from 169 (28%) on the fourth day to 10 (2%) on the tenth day. The response rate data were categorized into early returns, the first week return rate (n = 360), and late returns, the return rate after the first week (n = 233). Chi square analyses were conducted for the two format conditions using reward by time as the

independent variables. Tables 6 through 9 report the results of these analyses. The results of these analyses paralleled the initial response rate analyses. The egotistic reward coupled with the 30 minute time cue and the long format produced a substantially higher response rate than any other condition. (See Table 7.)

In summary the results of this study do not suggest that a particular type of social reward is more effective than another in increasing response rates. However, the data from this study do suggest that time cues affect response rates, but not in the sense that response rates are improved by short time cues. Rather the match between the time cue and the respondents' previous experience with mailed questionnaires of similar length appears critical. The persons in this study were well educated and accustomed to judging how long it would take to complete a task such as the one posed by the questionnaire. The higher response rate for the 30 minute time cue may hve occurred because the respondents discounted the 15 minute time cue as unrealistic. Finally using a reduced format for the questionnaire does not appear to accomplish the goal of making the task appear shorter and more manageable.

Given the uniformity of response rates across an 18 cell matrix, it seems reasonable to conclude that mailed questionnaires make a "total impact" and that it is not the presence or absence of a particular component of the cover letter or questionnaire that has a dramatic effect on the response rate. Therefore this study suggests that efforts to develop interesting, well written questionnaires with easy response formats and informative cover letters will pay off in improved response rates and improved response quality.

Table 1
Return Rates for the Three Reward Conditions

Reward Condition	Number Returned	Percentage Return
Egotistic	93	33%
Social Utility	197	33%
Help the Sponsor	203	34%

Table 2

Return Rates for the Three Time Conditions

Time Condition	Number Returned	Percentage Return
Fifteen Minutes	166	28%
Thirty Minutes	230	39%
No Time	197	33%

Table 3

Return Rates for the Format Conditions

Format	Number Returned	Percentage Return
Reduced Size	271	46%
Regular Size	320	54%

Table 4

Return Rate Frequencies for the Reduced Form of the Questionnaire by Type of Reward and Time Cue

Time Cue	Reward Condition		
	Social Utility	Egotistic	Help the Sponsor
No Time	31	24	36
30 Minutes	26	32	34
15 Minutes	29	28	31

$X^2(4) = 1.84$ n.s.

Table 5

Return Rate Frequencies for the Reduced Form of the Questionnaire by Type of Reward and Time Cue

Time Cue	Reward Condition		
	Social Utility	Egotistic	Help the Sponsor
No Time	36	32	37
30 Minutes	37	68	32
15 Minutes	38	7	33

$X^2(4) = 37.89$, $p < .05$

Table 6

Return Rate Frequencies for the Reduced Form of the Questionnaire by Type of Reward and Time Cue for Early Returns

Time Cue	Reward Condition		
	Social Utility	Egotistic	Help the Sponsor
No Time	20	13	24
30 Minutes	13	18	18
15 Minutes	18	18	15

X^2 (4) = 4.02, n.s.

Table 7

Return Rate Frequencies for the Reduced Form of the Questionnaire by Type of Reward and Time Cue for Early Returns

Time Cue	Reward Condition		
	Social Utility	Egotistic	Help the Sponsor
No Time	23	22	23
30 Minutes	17	47	21
15 Minutes	25	0	23

X^2 (4) = 42.24, $p < .05$

Table 8

Return Rate Frequencies for the Reduced Form of the Questionnaire by Type of Reward and Time Cue for Late Returns

Time Cue	Reward Condition		
	Social Utility	Egotistic	Help the Sponsor
No Time	11	11	12
30 Minutes	13	14	16
15 Minutes	11	10	16

X^2 (4) = .61, n.s.

Table 9

Return Rate Frequencies for the Reduced Form of the Questionnaire by Type of Reward and Time Cue for Late Returns

Time Cue	Reward Condition		
	Social Utility	Egotistic	Help the Sponsor
No Time	13	10	14
30 Minutes	20	21	11
15 Minutes	13	7	10

X^2 (4) = 4.68, n.s.

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